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The Bataan Nuclear Power Plant in the Philippines: Lessons from a White Elephant Project

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This working paper is a draft in progress that is posted online to stimulate discussion and critical comment. The purpose is to mine reader's additional ideas and contributions for completion of a final document.

The views expressed herein are those of the authors and do not necessarily reflect the views of Ateneo de Manila University.

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Abstract

In public policy literature, white elephant projects are described as large-scale investment ventures which do not only crowd-out funds from smaller-scale investment opportunities, but also lead to negative social returns. This case study briefly sketches recent literature and information on white elephant projects and then proceeds to examine the Bataan Nuclear Power Plant (BNPP) in the Philippines, considered an example of a white elephant project. This particular megaproject had implications on the Philippines' fiscal standing and energy security, offering lessons for future projects of this size and significance.

1. Introduction

Better energy infrastructure and adequate supply of power are integral to escalating and sustaining economic growth, through augmented productivity and other positive externalities (Cham, 2007; Yergin, 2006). Likewise, economic growth spurs greater demand for energy, thereby solidifying the close link between energy security and power generation (WEF, 2006).

Total power generation in the Philippines in 2013 stood at 75266 gigawatt hours (Gwh), equivalent to a 60% increase since 2000[1]. Nevertheless, risks of power shortages in parts of the country still loom (at the time of writing this case), and energy prices in the country have increased dramatically over the past decade or so. Part of the reason may have to do with increasing average crude prices—rising from US$26.2/barrel to US$78.0/barrel from 2000 to 2010, with an average inflation rate of 11.2[2]. An inadequate number of power projects has also contributed to a temporary backlog in energy generation (OECD, 2013).

Energy security issues have prompted some to revisit longstanding issues in nuclear power, as possible alternative energy source. This makes it relevant to revisit the case of the Bataan Nuclear Power Plant (i.e. BNPP, also sometimes referred to as the Philippine Nuclear Power Plant), a mega project initiated and completed during the administration of President Ferdinand Marcos.

The next section briefly sketches available literature on white elephant projects and then the paper examines the historical underpinnings of the BNPP, stressing the political economy of

[1] Department of Energy. Philippine Power Statistics 2013
[2] Department of Energy. Key Statistics 2010

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its project management and implementation as well as the corruption issues that plagued this mega project.

2. Framework for Identifying and Understanding White Elephant Projects

White elephants, in contemporary public policy literature, are described as socially unprofitable investment projects that have turned into heavy burdens for businesses and/or governments tasked with their maintenance (Robinson & Torvik, 2005). These megaprojects crowd-out investments in other low-risk, more socially beneficial projects. The unsustainability of megaprojects may be due to political, economic and social considerations (de Brujin & Leijten, 2008), all of which are tightly interlinked with one another. In addition, the implications of white elephant projects, both economic and legal are aplenty - numerous cases filed and large debt incurred, not to mention opportunity costs. These projects to be successfully implemented require a strong supportive environment, political will, and institutional mechanisms properly put in place.[3]

Some megaprojects have been largely criticized for their inability to deliver expected goals, despite the huge financial and non-financial costs attached. Sanderson (2011), for example, clustered and compared three alternative explanations of megaproject (under)performance in a meta-analytic study of megaproject literature. Table 1 summarizes these three alternative perspectives, namely: 1) strategic rent-seeking behavior; 2) misaligned and underdeveloped governance; and 3) diverse project cultures and rationalities.

Table 1: **Explanations for Megaproject Underperformance**

	Strategic rent-seeking behavior	**Misaligned and underdeveloped governance**	**Diverse project cultures and rationalities**
Arguments	Project promoters and contractors regularly engage in intentional rent-seeking behavior (underestimating costs, overestimating benefits)	Problems result from misaligned or underdeveloped governance arrangements incapable of handling the	Projects subject to processes of social construction and characterized by diverse and often competing cultures and rationalities

[3] By implication, UNCTAD, 2002. FREEDOM OF TRANSIT: OBLIGATIONS AND IMPLICATIONS OF ARTICLE V OF THE GENERAL AGREEMENT ON TARIFFS AND TRADE.

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	to get non-viable projects approved.	emergent turbulence inevitably associated with megaprojects.	- problems result from normal day-to-day management practice.
Solutions	Legal requirement for thorough ex-ante risk analysis and management plan, limit role of politicians to formulating and auditing public interest objectives, various ex-ante measures to improve accountability of project decision-making	Conscious design and creation at the front-end of the project of mechanisms that enhance ex-post governability; mechanisms must be appropriate to the particular context of the project.	Conscious design and creation at the front-end of the project of a shared culture supported by governance mechanisms to encourage collaborative and coordinated behavior.

Source: Sanderson (2011: 437)

The first explanation holds that promoters and contractors engage in deceptive activities (e.g. overestimating project benefits, underestimating costs and being overoptimistic with project schedule) in order to win contracts (Flyvbjerg, 2008; Wachs, 1989). In relation to this, Flyvbjerg, Skamris Holm & Buhl (2005) find that demand forecasts for transportation projects are generally flawed. To illustrate, passenger forecasts are overestimated in 9 out of 10 projects, i.e. the average overestimation ranging up to 106%. Likewise, the law on contracts is a formidable force in the legal system. Contracts, in general, should be honored; however, contracts, prior to their execution, can be tarnished with fraud or deceptive practices. One example is that of corruption – colluding with public officials to be awarded contracts or actively seeking out individuals with close relationships with public officers, which are often evident in white elephant projects.[4]

Furthermore, 9 out of 10 projects fall victim to significant cost overruns. While these faulty cost-benefit estimations are not explicitly attributed to the contractors' conscious effort to win contracts, these miscalculations might have confounded the decision-making process in project evaluations, creating significant stakeholder losses. The rationalization behind this, in

[4] Disini v. Sandiganbayan, et.al, G.R. No. 180564, 22 June 2010; Disini v. Sandiganbayan, et. al, G.R. No. 175730, 05 July 2010; Republic of the Philippines v. Disini, Sandiganbayan Civil Case No. 0013, 11 April 2012; Disini v. Sandiganbayan, et. al, G.R. Nos. 169823-24, 11 September 2013; Paras, Edgardo, Economics for Lawyers, Rex Book Store, Inc., 1993: Quezon City, Philippines.

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line with Sanderson's (2011) perspective, is that these deliberate adjustments could be part of efforts to strategically distort ex-ante evaluations of megaproject feasibility.

In relation to the aforementioned, studies suggest that megaprojects may be instrumental in advancing politicians' vested interests[5], sometimes even at the expense of collective goals. Robinson & Torvik (2005) contend that white elephants are a type of inefficient redistribution, which become politically attractive when public support seems elusive. There is a paucity of politicians who can effectively and successfully deliver credible promises to build these types of projects. Simply put, lobbying for megaprojects is politically rational despite its social inefficiency (Robinson & Torvik, 2005). This might explain the so-called "megaproject paradox"—more and more megaprojects are still being implemented and lobbied for despite the wealth of studies which provide evidence that these large investment projects suffer from poor implementation, high costs and subsequent poor performance (Flyvbjerg, Bruzelius & Rothengatter, 2003).

Meanwhile, the second explanation views the underperformance of megaprojects as an outcome of incoherent, inappropriate or underdeveloped governance arrangements which makes them incapable of handling risks, shocks or other sources of turbulence (De Meyer, Loch & Pich, 2002; Winch, 2001). This boils down to the capacity of governance arrangements put in place to handle or manage change through strengthening institutions for more streamlined operations.

Lastly, the third explanation relates to the multiple and sometimes conflicting discourses, cultures and rationalities that revolve around the handling of particular megaprojects (e.g. Atkinson, Crawford & Ward, 2006; Clegg, Pitsis, Rura-Polley & Marosszeky, 2002). If left unmanaged or unaddressed, these conflicting cultures and rationalities may result in coordination failures which might then hamper project development. While contestations may strengthen personal positions or opinions about certain issues like that of megaprojects, they can also lead to internal strife which can forestall project operations and processes.

In accordance with these alternative explanations, this case study uses Sanderson's (2011) framework in assessing the setbacks of the Bataan Nuclear Power Plant (BNPP) from its planning stage to its completion. It is argued that at certain points in the historical development of the BNPP, these explanations emerge and even interact leading to weaknesses in the BNPP project.

[5] Republic of the Philippines v. Disini, Sandiganbayan Civil Case No. 0013, 11 April 2012.

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3. Background on the Bataan Nuclear Power Plant

The Bataan Nuclear Power Plant was meant to be the first nuclear power plant in the Philippines. However, it did not generate a single watt of electricity since it was completed in 1987. Created as a response to the 1973 oil crisis which saw the international price of oil quadruple, the BNPP was expected to boost the Philippines' electricity generation by 1,200 megawatts (MW). Its output would have easily been equal to three 400MW, coal-fired, electricity-generating plants.

Demand for energy helped fuel the interest to develop nuclear power. For one, the economy was growing rapidly at 6.3% in 1976 and sufficient energy supply to meet and boost energy demand was deemed essential to escalate this growth further (Beaver, 1994). Also, during that time, nuclear energy was becoming commercialized and increasingly popular as an alternative source of energy. In fact, the Philippine Atomic Energy Commission (PAEC)[6], formed in 1958, already explored the idea of creating a nuclear power plant before the 1970 oil crisis.

Support from the United States (US), a long time economic partner of the Philippines, was also integral in the construction of the BNPP. Up to 60 percent of the entire BNPP cost was debt-financed with the aid of the US Export-Import Bank (Butterfield, 1978; Boyce, 1991). Given the size and scope of project, the government was expected to carry out the project in a systematic, organized and cost-effective manner. In line with this, it was critical to work with contractors possessing the technical capacity, as well as the technology, to handle such megaprojects (Abrenica, 2004). The ideal outcome was that the looming energy crisis would be solved with the least strain on government finances and with the greatest possible social return. The reality, however, was far from this. A series of events finally culminated in the creation of a nuclear power plant, but its entanglement in social, economic and, most especially, political issues ultimately led to its failure. Table 2 presents a timeline of events related to the BNPP issue, outlining the many challenges it faced during its construction.

[6] Currently known as the Philippine Nuclear Research Institute.

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Table 2. Timeline of Events

Date/Year	Event
1971	The United States pulls out of the Bretton Woods system[7], thus depreciating the value of dollar. Since oil was priced in dollars, oil producers are prompted to increase oil prices to compensate for their decreasing income.
September 1971	Republic Act No. 6395 which authorizes the National Power Corporation (NAPOCOR) to construct, operate and maintain power plants powered by nuclear, geothermal and other energy sources is enacted.
September 22, 1972	Philippine President Ferdinand Marcos signs Proclamation 1081 which places the entire country under Martial Law.
July-August 1973	Marcos announces the creation of nuclear power plants to counter the effects of rising oil prices. The National Power Corporation (NAPOCOR) is tasked to negotiate deals for two 600 Megawatt (MW) reactors. It also asks New York-based Ebasco Overseas Corporation to help in evaluating the best site for the plant. There is already some discussion of locating at least one plant in Bataan Province.
October 06, 1973	Syria and Egypt launch a surprise attack on Israeli-occupied territories. This precipitates further instability in the international energy market.
1974	General Electric is in negotiations with NAPOCOR, and offers to build two power plants for US$700 million. However, it is Westinghouse who wins the contract with an offer of US$500 million to build one plant with two 620 MW reactors. This deal is facilitated by Herminio Disini, Marcos' close friend, who is allegedly promised a US$17 million commission.

[7] The Bretton Woods system was a set of rules established to manage currency and money among the world's wealthiest countries. One of the main obligations it entailed was that each country ties its currency to the amount of gold in its possession. The US departure from the system in 1971 marked the end of the Bretton Woods (Garber, 1993).

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February 1976	The contract is signed, and the Philippine government is charged US$750 million for a single reactor, instead of the original two (US$250 million higher than the original amount). Adding the US$387 million in interest and escalation costs, total project cost ran up to US$1.1 billion (for just one reactor, not two).
March 1976	Westinghouse starts construction on the site in Napot Point, Morong, Bataan.
1978	Construction is stalled because of concerns about the location. The International Atomic Energy Agency (IAEA) sends another group to study the safety of the site.
1979	Philippine Atomic Energy Commission (PAEC) authorizes construction of BNPP.
March 28, 1979	The Three Mile Island accident happens in Pennsylvania, United States where a partial nuclear meltdown causes widespread panic among anti-nuclear groups.
June 1979	Marcos, fearing that an accident might occur with the Bataan plant, appoints commission headed by Ricardo Puno to overlook the construction of the plant.
Later in 1979	The commission finds that the plant's design is hazardous, and so they push for a redesign to add new safety features. NAPOCOR renegotiates the terms of the contract to incorporate the commission's findings with Westinghouse. But after the renegotiations, the cost rises to US$ 1.8 billion from US$ 1.1 billion. Adding interest costs and inflation, the total amount is now US$2.2 billion.
1983	BNPP is completed.
1984 to 1985	Tests, synchronization, and reviews are undertaken as final preparations for BNPP's operations are underway, supervised by NAPOCOR and the IAEA Operational Safety Review Team. NAPOCOR also starts sending engineers to the United States for training.
February 1986	The People Power Revolution takes place, overthrowing Marcos. Corazon Aquino becomes President.

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April 1986	The Chernobyl disaster happens in Ukraine as an explosion releases radioactive particles believed to cause harm to thousands of people living in the area.
May 1986	The BNPP operating contract is suspended.
September 18, 1986	Corazon Aquino holds a speech at a joint session of the United States Congress. She declares that the Philippines will honor all debt incurred by the Marcos regime, including the Bataan Nuclear Power Plant.
Later in 1986	Aquino includes an automatic appropriation in the government budget for principal and interest payment of the country's external public debt.
1988	The Aquino administration files a complaint against Westinghouse. The latter was accused of allegedly paying bribes to Marcos. Westinghouse then files an arbitration case in Geneva, Switzerland
1990	The Presidential Commission on Good Governance (PCGG) charges Herminio Disini, the broker of the Westinghouse deal, with corrupt practices.
1992	The Office of the Ombudsman dismisses the case against Disini on the grounds of insufficient evidence to prove a case. Herminio Disini goes on a self-exile for an undisclosed period of time and leaves the Philippines.
1993	Philippine President Fidel Ramos, plagued by frequent energy black outs due to insufficient supply, hires an Australian company, METTS, to conduct a study to convert the BNPP to a coal and natural-gas plant.
January 1995	METTS releases a report concluding that the cost of converting the BNPP to a coal plant will equal the construction of a new plant, and that a natural-gas plant will make "better financial sense"
September 27, 1995	Ramos authorizes a panel to conduct exploratory discussions with Westinghouse for a possible settlement of the pending legal case.
October 11, 1995	A settlement is reached between the Philippine government and Westinghouse involving a package of more than $100 million, consisting of $40 million in cash, and two newly manufactured 160 MW combustion turbines worth $60 million

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2001	Herminio Disini makes a quiet return to the country.
2003	PCGG files a petition to the Supreme Court versus the Ombudsman on the dismissal of Disini's case in 1997. The Supreme Court's decision orders the Office of the Ombudsman to file criminal charges against Disini.
June 30, 2004	The Office of the Ombudsman files two cases in the Sandiganbayan charging Disini with corruption of public officials and with a violation of Anti-Graft and Corrupt Practices Act.
2011	The government announces that BNPP is to become a tourist destination.
April 11, 2012	The Sandiganbayan (a special court that has jurisdiction over cases involving graft and corruption) orders Herminio Disini to return more than $50 million of commission from the BNPP deal. The Sandiganbayan dismisses the case against Marcos, "stating that while the close relationship between Marcos and Disini was established, there is insufficient evidence to prove that the former actually obtained any part of the commissions"
September 11, 2013	The Supreme Court affirms the 2012 Sandiganbayan decision which directed Herminio Disini to pay the costs.
June 2014	Herminio Disini passes away due to organ failure. No money is returned.

Sources: ABS-CBN News (2009), Barsky & Kilian (2004), Beaver (2004), Bello, Harris, Zarsky (1983), Butterfield (1988), Clarke et al., (1995), PCGG (2012), Supreme Court of the Philippines General Register (2007), The New York Times (1995, 1996).

4. Project Challenges

Sanderson's (2011) framework provides a way to diagnose the key factors that led to the difficulties in implementing this megaproject. The BNPP case offers additional angles for analysis, given the complex nature of this project.

Strategic rent seeking behavior. Reports suggest that the selection of the BNPP contractor, Westinghouse Electric, did not follow the proper bidding process. In fact, no bidding process took place prior to the signing of the contract, even if Westinghouse had a strong competitor for the project. This was already a clear violation of existing laws at that time. There

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were two major competing contractors for the BNPP -- General Electric and Westinghouse, both of which had comparable services. While General Electric employed a "board and conventional" approach which included contextual assessment, nuclear seminars, nuclear exposure trips and a formal proposal for the building of two 600-mw nuclear reactors for approximately US$700 million, Westinghouse employed a business strategy that was common to the Philippines -- wielding existing social or political ties to get ahead of contract negotiations (Beaver, 1994; Dumaine, 1986).

According to available sources, their business strategy involved hiring Herminio Disini, golfing partner and crony of former president Marcos, as their sales agent (Bello, Harris & Zarsky, 1983). Disini's wife is also the first cousin of Imelda Marcos. Disini's political connections gave Westinghouse an advantage over General Electric. Westinghouse justified Disini's hiring as a strategy to minimize negotiation costs. Hiring a local agent to assist in contract negotiation seems rational, as it could help reduce non-financial costs (e.g. language barriers, educating foreign negotiators on Philippine culture and negotiation processes) (Beaver, 1994).

The BNPP contract was finally signed in 1976, approximately two years after project negotiations took place.Originally, Westinghouse proposed to build two nuclear reactors for a reported cost of US$500 million (US$200 million less than GE's proposal). However, by the time the contract was signed, the cost escalated to US$1.1 billion for a single reactor (equivalent to a 140% increase in cost as compared to what has been previously reported). Critics then expressed contempt over the power plant cost, which ballooned to more than twice its original value. Calculations of the National Computer Center revealed that the single BNPP reactor is overpriced by at least US$75 million compared to similar Westinghouse plants being constructed at that time in Yugoslavia, South Korea and Taiwan (Butterfield, 1978). Westinghouse, however, claimed that the increase in cost was because it accounted for project risks (e.g. volcanic and seismic activity), and established facilities to house the plant's workers (Beaver, 1994)

As per Sanderson's (2011) framework, strategic rent-seeking as an explanation of megaproject underperformance involves conscious tweaking of project proposals in order to win project bids. It appears, however, that in the BNPP case, Westinghouse's success in winning the BNPP contract was fueled more by a deliberate effort to strategically wield existing political ties to serve private interests than a conscious attempt to deceive project evaluators. This could

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provide some support to Kang's (2002) assertion that political considerations took precedence over efficient policy choices during the Marcos dictatorship, and this, in turn, exacerbated the economic problems of the country.

To further contextualize this, Table 3 presents the reported amount of government-assumed loans of Marcos' alleged cronies. As seen in the table, government-assumed loans linked to the BNPP case ranked highest in the list, amounting to US$795 million. Meanwhile, 10 of Marcos' cronies reportedly accounted for US$3.3 billion of government-assumed loans, which is approximately equivalent to 13 percent of the total debt accumulation during Marcos' 20-year term[8]. This thereby suggests that a considerable portion of debts incurred by the Philippines during the said administration might have been dispensed to benefit only a select few.

Table 3: Ten Largest Government-Assumed Loans of Marcos' Cronies (in US million dollars)

Crony	**Related Company**	**Amount**
Herminio Disini	National Power Corporation	795
Cojuangcos	PLDT	654
Benjamin Romualdez	Manila Electric Company	370
Rodolfo Cuenca	Construction Development Corporation of the Philippines (CDCP)	323
Roman Cruz	Philippine Airlines	321
Roberto Benedicto	NASUTRA/PHILSUCOM	265
Jose de Venecia	Landoil	165
Alfredo Montelibano	Planters Products	159
Roberto Ongpin	NIDC	157
Geronimo Velasco	Philippine National Oil Corporation	123
Total		3,332

Source: National Economic Protectionism Association as cited in IBON (2004: 5)

Misaligned and underdeveloped governance. The lack of a formal bidding process could have led to awarding the contract to a less competent private firm. The absence of competition could have just augmented the risks associated with the project, as it is more likely that political favors were pursued at the expense of project quality.

Furthermore, Westinghouse allegedly awarded subcontracts to two of Disini's companies without bidding (Beaver, 1994). The lack of stringent project rules and policies boomeranged

[8] Estimated total debt accumulation of the Marcos administration alone is USD 25.653 billion (Bangko Sentral ng Pilipinas).

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against Marcos when news came out about these anomalies. Marcos reportedly handled the issue by taking hold of Disini's companies, temporarily halting the project construction and making it appear as if he wanted to cancel the contract with Westinghouse (Beaver, 1994). At one point, the Soviet Union even volunteered to take over the project. However, their proposal was not seriously entertained by Marcos (The Wall Street Journal, February 15, 1978). Sketchy agreements which seemed to lack the formality and rigor expected of such megaprojects may have reinforced the alleged (or actual) corruption that was happening in relation to the project.

Meanwhile, international events also serveed as major shocks shaping global perceptions on the safety of nuclear power plants. In particular, the 1979 Three Mile Island accident caused global distress after a cooling malfunction caused the destruction of a TMI reactor. As a result, radioactive gases needed to be released, yet the volume was not significant to cause health problems to people nearby the plants. The incident made the world question the safety of nuclear power, causing Marcos to order a three-person commission to reevaluate the safety of the BNPP.

The commission's feedback was negative, noting that the plant had an old design and had notable safety issues. Even Librado Ibe, who was then the head of the Atomic Energy Commission (AEC), was initially not convinced that construction of the BNPP should continue. On April 1979, however, he reversed this position and the AEC issued the permit for the construction of the nuclear portion of the plant (Dumaine, 1979).

As per Sanderson's (2011) framework, misaligned governance systems seemed to pertain to internal project arrangements that were not robust enough in order to adequately manage shocks and other uncertainties. The BNPP case, however, showed that these misaligned and underdeveloped governance systems may be linked with the rent-seeking behavior of stakeholders pursuing their vested interests. Politicizing project construction created a whole new problem when anomalies were revealed and caused public outrage.

Diverse project cultures and rationalities. There were two competing discourses on the BNPP case. One side was supportive of its construction, as it was deemed to significantly aid in sustaining Philippines' economic growth. The other was opposed to its construction, citing issues related to its safety and security and linking the BNPP to US influence over Philippine political and economic issues (Bello, Harris & Zarsky, 1983).

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Issues about safety and security plagued the construction of the BNPP. For one, accounts noted that there were considerable geographical hazards abound in the site. The site was chosen by the National Power Corporation (NAPOCOR), for reasons which have not yet been fully disclosed to the public. However, perfunctory analysis would suggest Bataan's proximity to Manila and other large provinces as a contributing factor, since Luzon was the targeted priority consumer of the electricity to be generated by the plant.

Initially, NAPOCOR asked for the assistance of the International Atomic Energy Agency (IAEA), a U.N. organization, and Ebasco, a New York-based international firm, for a feasibility study on the location (Dumaine, 1986). The IAEA initially recommended Bagac, Bataan, but Ebasco recommended a location farther from the shore due to concerns about tidal waves and the sea-level. The location agreed upon by the parties was at Napot Point in Morong, Bataan, which is a few kilometers away from Bagac (ABS-CBN News, 2009).

Construction in Morong was halted when concerns regarding its location resurfaced. It was then learned that the site was near an active volcano, Mount Natib, which is near the same mountain range as the famous Mount Pinatubo which erupted in 1991 (Volentik, Connor, Connor & Bonadonna, 2009). . While the area does not sit on an active fault line (Senate Economic Planning Office, 2009), the risk cannot be completely ruled out in the Philippines.

In the end, resolutions of contestations about the feasibility of nuclear power in the Philippines particularly in the case of the BNPP remained elusive. Consultants seemed to have varying assessments about the issue. The lack of consensus appears to have transpired not only because of management-related disputes but also due to varying and conflicting stakeholder political interests.

5. The Aftermath

The challenges in the development of the BNPP may have contributed to stronger public perceptions against government, against debt (per se) and against the use of nuclear energy. No one was prosecuted for the corruption behind BNPP. While the Presidential Commission on Good Government (PCGG) filed a case against Herminio Disini and Ferdinand Marcos, political circumstances delayed any quick decisions on the matter. Counter motions filed by Disini in the Supreme Court prior to his death, stalled matters further.

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However, in 2012, the Sandiganbayan finally ruled on the matter and held Disini accountable for approximately USD50M and asked to reconvey such amount, which was further affirmed by the Supreme Court.[9] But in 2014, when Disini died, this left the reconveyance of this amount in uncertain terms. The corruption case behind BNPP was one of many filed in the country to no avail, reflecting what some analysts consider to be low conviction rates against graft and corruption (Quah, 2010).

BNPP has also contributed to the impression that debt is damaging to the economy. While proper debt management is beneficial for capital gains, the amount of debt due in part to this project generated considerable public pessimism. As the BNPP accounts for the largest single debt in the country's history, it created an impression that debt can be a tool for the few to gain money at the great expense of the many.

Good governance and freedom-from-debt advocates have in fact used the BNPP as part of their rallying cry against corruption and high debt payments. For instance, the Freedom from Debt Coalition (FDC) and IBON Foundation Inc. cited the BNPP as a case in point in actively campaigning for the cancellation of illegitimate debts (FDC, 2007, 2013; IBON, 2004, 2005). Illegitimate debt, by definition, includes odious and illegal debt, as well as debt incurred from losing a war, from irresponsible lending by creditors and from loans made for ideological or political reasons (Jubilee USA Network, 2003).

Supporters of this campaign argued that creditors are to be held liable for debts granted to dictatorships or oppressive regimes, such as what has transpired during the Marcos dictatorship. This perspective is echoed by the former Chief Justice Reynato Puno in his speech during the 10th National Convention of the Integrated Bar of the Philippines in which he said, "foreign creditors knew or had no reason not to know that the loans will be used for used for some illegitimate purpose like supporting notoriously brazen kleptocratic military regimes. These creditors need not be paid because they are parties to the crime (IBON, 2005:2)." Simply put, creditors who irresponsibly lent money to fund questionable or what some analysts call "fraudulent" megaproject deals (AFRODAD, 2007; IBON, 2005), are deemed partially responsible for megaproject mishaps as they helped propel the construction of these white elephants (Hanlon, 2006).

[9] Dsini v. Sandiganbayan, et.al, G.R. No. 180564, 22 June 2010; Disini v. Sandiganbayan, et. al, G.R. No. 175730, 05 July 2010; Republic of the Philippines v. Disini, Sandiganbayan Civil Case No. 0013, 11 April 2012; Disini v. Sandiganbayan, et. al, G.R. Nos. 169823-24, 11 September 2013.

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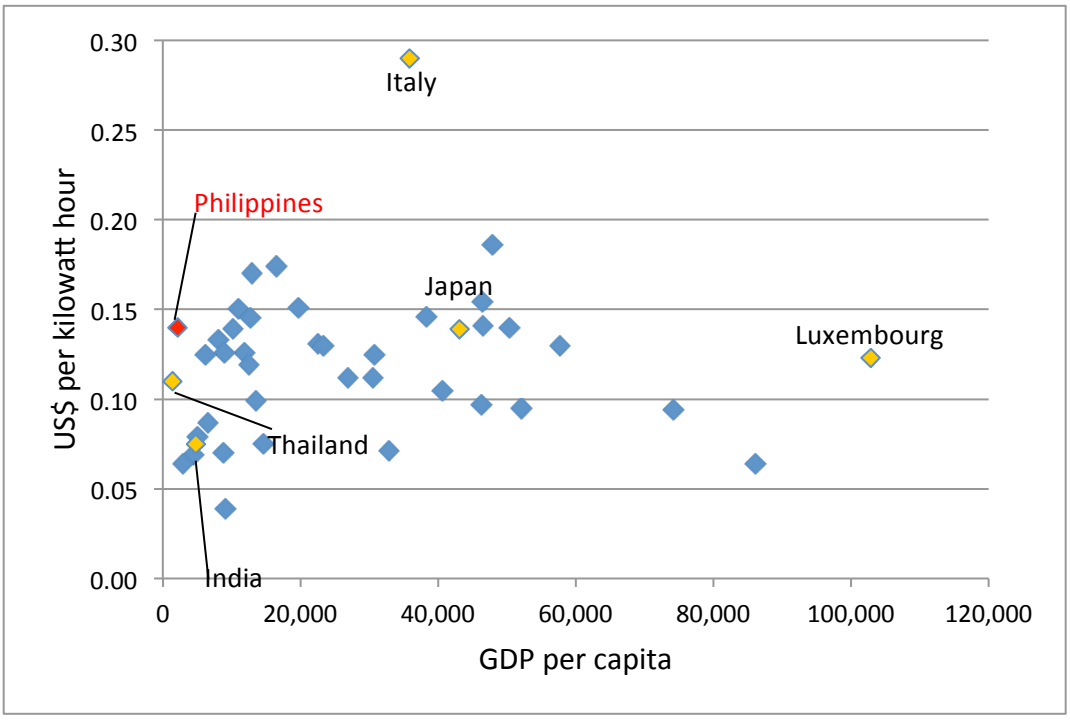
The Philippines has moreover been avoiding nuclear power as a source of energy since this project. The country has not fully eradicated its dependence on imported oil; and its energy supply is still relatively tight. To illustrate, the Philippines has one of the most expensive electricity costs for industrial clients, charging as much as US$0.14 per kilowatt-hour (kwh) in 2010; Thailand, in contrast, only charges US$0.07 per kwh and India US$0.11 per kwh (Figure 1). Even when faced with this problem and the prospect of a power crisis in 2015, the government has remained resolute in not operating a nuclear power plant (Porcalla, 2014).[10]

The Philippines' ability to operate a power plant remains highly contested (Berba Jr, 2013), due to high nuclear power operating costs and due to the recent nuclear plant catastrophes which happened in more advanced countries like Russia and Japan (Lipscy, Kushida & Incerti, 2013; WHO, 2006). Secondly, the Philippines strives to attain energy security while promoting environmental sustainability, hence a greater preference for natural gas and other renewable energy sources.

Figure 1. Electricity costs for industrial clients (2010)



Sources: IMD World Competitiveness Data and World Bank World Development Indicators.

[10] However, there are still Filipino nuclear energy advocates. Representative Mark Cojuangco proposed to revive the plant through the House Bill No. 4631 entitled "Bataan Nuclear Power Plant Re-Commissioning Act of 2008 while Senator Miriam Defensor Santiago expressed her support for the BNPP rehabilitation through the Senate Bill No. 2665(FCAID, 2009; Pascual Jr., 2013; Senate Economic Planning Office, 2009).

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An assessment by a third-party company has concluded that the nuclear reactor is "of basically sound design and construction, and could, with modest expenditure, become one of the most modern and safest light water reactors in East Asia" and that cleaning, upgrading, reconstruction, and retraining of staff are needed to fire the plant again (METTS, 1995). These recommendations were set aside, however, in favor of the relatively safer option of a natural-gas power plant.

Currently. the plant is still in use − just not for the purpose of producing energy, but in entertaining tourists such as the media, and students, passing on the lessons of what could have been the first nuclear power plant in Southeast Asia (McGeown, 2011).

Perhaps one indirect favorable outcome of the BNPP is that the Philippines is now more focused on alternative sources of energy that pose less threat to the environment. In fact, the country is the world's second largest producer of geothermal energy, with geothermal sources contributing 11% of total energy generated in 2012, while hydropower energy contributed 21%[11]

6. Bearing the Burden

The BNPP placed a considerable strain on the country's resources. The Philippines paid BNPP-incurred debt annually from 1987 to 2007, totaling US$1.88 billion. In order to reduce the amount of the debt, a portion of the balance was converted into Brady Bonds in 1993. With some debt restructuring, the government was able to retire the outstanding amount in 2007, ending the payment for the BNPP that year (Bureau of Treasury, 2006)[12]. The total principal payments for the BNPP reached US$1.2 billion and the total interest payments reached around US$690 million. This means that on average, over the period from 1987 to 2007 (full payment of the loan) the Philippine government paid US$246,000 daily or $7.5 million monthly for this project (Annex A).

As a percentage of government expenditure, the BNPP payments peaked at 4.36 percent of total government spending in 1988, and reached 4.06 percent in 1993, subsequently declining

[11] US Energy Information Association, 2014.

[12] In 1992, the government undertook a debt restructuring whereby they converted commercial bank debts into Brady bonds, enabling commercial lenders/creditors to choose from a menu of instruments including buybacks, discount exchanges for debt stock reduction, and par exchanges at reduced interest rates. This bond was part of the Brady Plan that was introduced in early 1989 (OECD, 2011).

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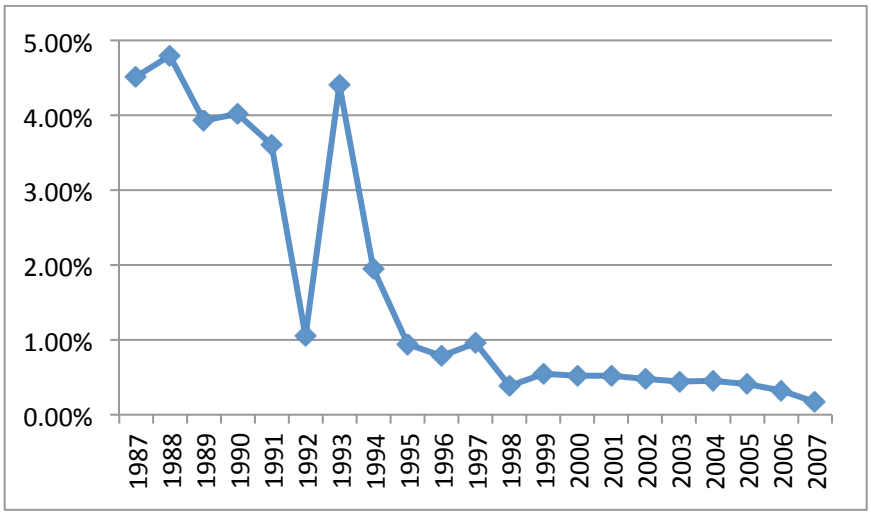
after that year (Figure 2). The spike in 1993 can be attributed to the debt restructuring program of that year.

To further contextualize the magnitude of the servicing of the BNPP debt, comparisons can be made between the average BNPP payments per administration (Aquino 1986-1992, Ramos 1993-1998, Estrada 1999-2000, Arroyo 2001-2005) and the average payments for selected infrastructure spending (i.e. water resource and flood control, and housing and community development) relative to total government expenditure per administration.

During the first few years of payment, the average share of BNPP debt spending was considerably larger (4.17 percent) than that of housing (2.20 percent), and only marginally smaller than of water resources (5.50 percent) (Figure 3). While the share of BNPP exponentially decreased in the following years, the average share of BNPP spending from 1993 to 1998 was still significantly large at 1.57 percent, before decelerating even further from 1999 onwards

Figure 2. BNPP Debt Payments Relative to Annual Government Spending (1987-2007)



Sources: Bangko Sentral ng Pilipinas (BSP), Bureau of Treasury (BTr).

Figure 2. BNPP Debt Payments, Water Resources & Flood Control, Housing & Community Development Relative to National Government Expenditure (1987-2005)

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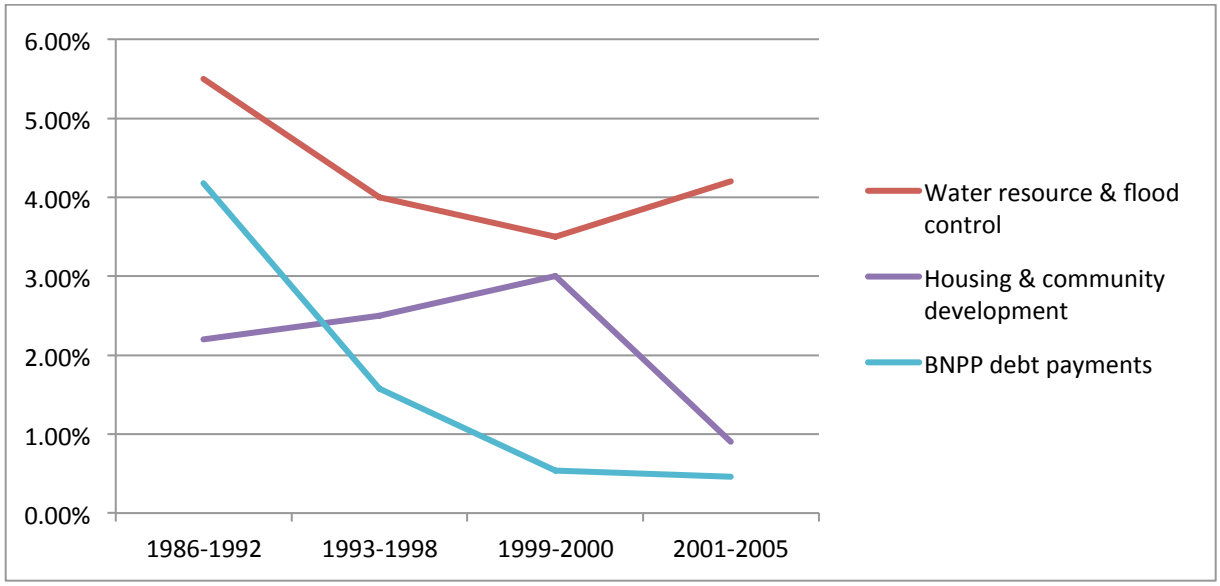

Sources: Diokno (2010), BTr, BSP.

Interestingly, comparing the financial cost of BNPP with budget allocations for selected social services in 2014, the opportunity costs of BNPP becomes starkly clear. Calculations reveal that the BNPP costs approximately Php 56.5 billion, accounting for both principal and interest payments. This is considerably greater than the 2014 budget allotment for the construction of basic educational facilities (Php 44.6 billion), relocation of informal settler families (Php 10.2 billion), healthcare insurance premium subsidies (Php 35.3 billion), agricultural development which includes infrastructure development and support for fisherfolk and farmers (Php 52.7 billion) among others (Table 4). Despite the time lag in comparison, this finding suggests that the money spent on the BNPP could have been productively allocated to other pressing public investments.

Table 4: 2014 Budget Allocations (in Php billion) for Selected Social Services

	Budget	**Details**
Bataan Nuclear Power Plant Cost: Php 56.5 billion		
Education		
Construction of classrooms	44.6	fund the construction of 43,183 new classrooms, including 15,619 classrooms for senior high school for 2016; repair 9,502 classrooms; procure 1.6 million seats; and install 13,586 water

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		facilities.
Hiring of teachers	8.6	hiring of 33,194 teachers and 1,500 principals
Procurement of textbooks and instructional materials	8.3	procurement of 42.6 million textbooks and instructional materials
Healthcare		
Rehabilitation and construction of health facilities	13.3	rehabilitation or construction of 2,871 health facilities, particularly barangay health stations and rural health units
Deployment of health professionals to poor localities	3.0	deploy additional health professionals, including 131 rural health physicians, 22,500 nurses and 3,000 midwives, to provide health services to poor localities
Healthcare insurance premium subsidies	35.3	provide 14.7 million poor and near-poor households with premium subsidies under the National Health Insurance Program
Socialized housing		
Relocation of informal settler families	10.2	relocation of 26,367 informal settler families living in danger zones
Road transport		
Farm to market roads (DA)	12	
161 signalized intersections and traffic and transport management (MMDA)	0.499	
Agricultural development	52.7	for its programs that will increase the productivity and income of farmers and fishermen
Rural electrification		
Household electrification program	0.159	For electrification of 5939 households
Sitio electrification program	6.4	For electrification of 7073 sitios

Source: Department of Budget and Management, Budget ng Bayan Website (2014).

7. Conclusion

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The BNPP case offers valuable insights on the political economy of megaproject management. The following key points were discussed in greater depth through a historical analysis of the development of the case and a basic empirical analysis of the implications of the BNPP on the country's fiscal standing:

a. Political considerations interfere with economic decision-making. While available megaproject literature focused highly on technical and process design as well as cost-benefit forecasting failures, the BNPP case highlighted the politics involved in megaproject planning and implementation. The case is an example of how political considerations interfere with economic decision-making, thus complicating the project management picture. To illustrate this, it has been shown how megaprojects may crowd-out investments for other socially-beneficial projects, and how debt servicing may lead to misallocation of investment through rent-seeking behavior.

b. Megaproject management is stochastic, rather than deterministic. The BNPP case also emphasized the role of external issues and factors (e.g. global social and economic conditions) which may also influence the megaproject's success or failure. To illustrate, the case underscored the role public perceptions play in the success or deterrence of a megaproject. Public perceptions are shaped by global social, political and economic events, and these events are largely related to time. Henceforth, project management risks are not only tied to world conditions but also in their entrenchment in the temporal unfolding of events. Intuitively, the greater the time it takes for the project to be completed, the greater the chances that events (domestic or international) occur which may deter project implementation and even its completion. Thinking about megaproject management therefore must always take into account strategies to consider the evolving political and economic landscapes and how to adjust to these.

c. Dominant discourses matter in megaproject success/failure. Historical content analysis of events would reveal that earlier discourses on the BNPP focused more on economic considerations (e.g. addressing power shortage concerns). Midway, the debates related to technical project implementations revolved around the issue of environmental sustainability (e.g. safety issues, environmental impacts). Latter discussions, meanwhile, focused on power

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contestations (e.g. alleged corruption, filing of legal complaints, etc). It appears that over time, project management discourses seem to deviate away from the project itself and its intended benefits and proceeds to tackle issues involving political interests. Hence, the success of megaprojects could also hinge on how managers are able to successfully engage in their communications strategies across these different areas for public (and sometimes also internal, public sector) engagement.

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